Open Letter to European Energy Policymakers and the Broader Public

Energy policy and energy industry options for Germany and Europe in view of Russia's attack on Ukraine

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- This document outlines key points of a short-term energy policy in response to Russia's attack on Ukraine.
- It was developed as a collaborative effort of a dozen scientists and energy industry consultants under high time pressure and composed in response to the rapidly changing situation in Eastern Europe. It is based on expert knowledge, professional experience, and plausibility considerations, but not on new scientific studies.
- We hope to provide viable paths for action to individuals, businesses, and politicians and offer support in navigating out of this crisis.

1. **We - Germany and Europe - should reduce our dependence on Russian energy imports as much as possible in the short and medium term.**
   - Dependence should be reduced for two reasons: On the one hand, because Russia could halt the supply of all energy flows. On the other hand, because it facilitates curtailing Russian fossil-fuel imports as part of sanctions.
   - Even if both scenarios never materialize, reduced dependence has a high value. It makes Europe less susceptible to threats and credibly enables Europe to extend sanctions to the energy sector as well.
   - We will reduce our dependency by cutting energy imports as well as taking precautions against short-term supply disruptions.

2. **The primary concern is natural gas. Oil and coal are secondary.**
   - Large parts of Europe are heavily dependent on Russian natural gas imports, especially in Central and Eastern Europe. Switching to other suppliers is difficult. The transport of natural gas within Europe is restricted by the pipeline infrastructure.
   - Although Europe also imports a lot of oil and coal from Russia (and oil-export revenues are about five times more important for the Russian state budget than natural gas), it is easier to find alternative suppliers for oil than it is for natural gas. Oil and coal can be easily and flexibly transported by ship, and, in the case of oil, strategic reserves exist. The necessary import infrastructure is available in sufficient quantities, unlike regasification terminals.
   - In addition, the intra-European transport of coal and oil is easier.
   - Even as a sanction, cutting off European purchases of Russian oil and coal is likely to have less impact because Russia could more easily switch to other buyers than it could for natural gas.

3. **We must do whatever is possible in order to diversify natural gas suppliers and to reduce consumption.**
   - Russia supplies about 40% of European natural gas consumption. In Germany, the share is about 55%. The challenge to reduce this share in the short term is enormous.
   - Regulation of natural gas storage is important and useful. It is essential to fill the natural gas storage tanks during the summer and autumn.
   - However, our current natural gas storage capacity is not sufficient. The natural gas storage capacity in Germany is only about 25% of the annual consumption. This can help to bridge a winter, but it does not guarantee strategic independence over longer periods. The greater challenge is to have enough total natural gas available throughout the year.
   - In the following, we present a number of individual measures that we consider sensible and appropriate. In order to become independent from Russian natural gas in the short term, a large number of measures, some of them quite drastic, are necessary.

4. **European solidarity is also essential in the energy market, especially now.**
   - The security of supply of natural gas in Central and Eastern Europe is particularly important.
   - All planning options for German supply security must take this into account from the outset.
   - The energy challenges for each European country are varied, but the EU as a whole must unite to become more independent from Russia -- otherwise little will be gained.

5. **Time is pressing and the planning horizon is short.**
   - Unlike electricity, natural gas can be stored. That's why conservation and diversification measures should begin immediately, well before next winter. Every kWh of natural gas we save this March eases the supply situation this year and possibly into March next year.
   - All of this relates in particular to the immediate future of 2022 and 2023. In the short term, decisions should be made primarily for this period.
   - There is no need to discuss 2030 now (e.g., the end point of the coal phase-out). There is also no need to postpone long-term climate policy measures. For example, several climate policy decisions on the Fit-for-55 package are due over the next year. However, these will only be effective in the medium term; an updated Emissions Trading System (ETS-2), for example, would likely not be implemented until 2026. There is no reason to dilute the level of climate policy ambition and thus damage the EU's climate policy credibility.
   - Some relevant energy investments have a long lead time and then even longer lifetimes. Such decisions should be made in the short term, even if they turn out to be unnecessary in retrospect. For example, investing in LNG terminals opens up flexibility options that are valuable even if they would hardly be used over their lifetime.

6. **Bring forward, accelerate, and scale investments in renewables, energy efficiency, and electrification.**
   - Every wind turbine, every solar farm, every biomass plant, every thermal insulation, every heat pump that is built this year helps.
   - This requires fast and consistent investment decisions from companies, landlords, private households and public institutions.
   - At the same time, this also requires an effort on the part of manufacturers and suppliers, technicians and installers, planning and approval authorities.
   - In light of the current context, we should fundamentally reassess the appropriate prioritization of other interests (residents, environment, tenants). In terms of accelerating the expansion of renewables in the short term, we welcome the classification of renewables

as being of overriding public interest. If approval procedures could be accelerated, at least for the next few years, this would have a distinct impact.
- In the medium and long term, the switch to renewable energy sources is more urgent than ever. Hurdles and restrictions (e.g. on land-use) should be removed.
- Recently, an ambitious plan to expand wind and solar energy across Germany was presented. We support its conclusions and hope for explicit support from all political parties and levels of government.

7. **For the next few years, all available coal and nuclear power plants are to be maintained or reactivated.**
   - Every kWh of electricity from alternative sources reduces natural-gas consumption by almost two kWh because gas-fired power plants have an average efficiency of about 50%.
   - Extending the lifetime of coal and nuclear power plants by a few years (2-5) seems reasonable. This in no way calls into question the fundamental nuclear and coal phase-out, but contributes to our energy diversification in the short term.
   - Similarly, power plants from grid and capacity reserves should be made available to the electricity market. This is not about maintaining generation capacity; rather, it's primarily about replacing natural gas at every point in the system and whenever possible - that's why these power plants have to run.
   - The challenges with nuclear power are great, especially for reasons of safety-related licensing and fuel availability.
   - All coal-fired power plants are regulated in the European emissions trading system. This means that the total amount of emissions is capped over time; higher emissions today must be compensated by lower emissions in the future. As long as the fit-for-55 reform of the EU ETS (esp. tightening the cap) is not watered down due to the current crisis, climate policy goals will not be compromised.
   - These measures are problematic in terms of regulatory and climate policy principles, and under normal conditions we would clearly reject them. In our opinion, however, the current exceptional security situation justifies them.

8. **Procure LNG in the short term, build terminals in Germany in the medium term.**
   - Europe has enough liquified natural gas (LNG) import capacity to cover more than half of its natural-gas consumption. However, much of this is located in Western Europe (Spain alone has about 25% of the import capacity) and can only be used to a limited extent for Central Europe. Not even half of the LNG capacity has been used in recent years.
   - The planned construction of two LNG terminals in Germany makes sense. In view of the current situation, maximum acceleration of planning and approval processes would also be in our best interest.
   - Regasification terminals have value in themselves, even if they are never used. Their very existence mitigates the potential for extortion. They are, therefore, an insurance policy.
   - The policy efforts already underway to secure additional LNG supplies are sensible and necessary, as LNG is in short supply on world markets, most export capacity is tied up in long-term supply contracts, and there appears to be little scope for additional exports in the short term.
   - Where possible in the short term, a temporary (re)start of natural gas production in the EU would be desirable. This may include a reassessment of earthquake risk in Groningen.

9. **Significant comfort restrictions next winter are conceivable and may be necessary.**
    - Half of Germany's natural-gas consumption is used to heat residential buildings and offices.
    - Reducing the room temperature amongst individuals and families in their homes is by far the most effective option for the next two winters to reduce consumption.
    - In larger buildings (office buildings, apartment buildings), lowering the supply temperature would be a conceivable measure, for which, however, the tenancy law would possibly have to be temporarily changed (especially the guarantee of a minimum room temperature of 20 to 22 °C).
    - For office buildings, consider legal requirements for maximum room temperature.
    - In many cases, transparent, high energy prices are likely to be the only realistic control instrument.
    - End-use consumers may learn about price jumps with a delay of months or years via price adjustments or additional payments. That is why it is important to communicate clearly today that heating costs will rise sharply in the coming winters, especially for natural gas heating systems.
    - In addition, a clear educational information campaign on why saving energy is relevant and how it works - namely in heating - is essential.

10. **Some industries will suffer greatly from high natural gas prices.**
    - In industry, natural gas is used for process heat and material use (as a precursor in the chemical industry). Examples are glass production, basic chemicals (methanol, ammonia), fertilizer production, refineries, and parts of the iron and steel industry.
    - These industries are likely to cut back sharply on their natural gas consumption in the coming years in response to the high price. This is economically painful, but sensible and necessary. After all, the products of these industries are usually much easier to import than natural gas. A temporary substitution of domestic, gas-requiring industrial production by imports is, therefore, ideal in the short term.
    - A high natural gas price is necessary to push easier-to-replace demand out of the market, leaving enough natural gas for the harder-to-replace products and applications. It is exactly this kind of complex prioritization decision for which we need coordination via markets.
    - Companies and employees should be adequately compensated for this. Support payments should be designed in such a way that they cushion economic hardship but do not provide an incentive to continue natural-gas consumption.
    - In the short term, all potential for switching to other fuels in bivalent heat/steam generators should be exploited and use of power-to-heat should be promoted more strongly (large heat pumps, high-temperature heat storage).

11. **High energy prices are essential as an efficient incentive signal for diversification and demand reduction.**
    - High prices for natural gas (and also electricity) are the most important, effective, and efficient mechanism to reduce demand and create additional supply.
    - Capping prices would damage the most important adjustment mechanism we have.
    - Compensatory measures for businesses and households should not reduce effective prices so as not to dilute incentives to save energy. For example, price caps on fuels, a switch from marginal to average cost pricing in billing for energy customers, or the skimming of economic rents (windfall profits) for suppliers due to high natural gas prices distort incentives to provide alternative fuel options and demand reductions.

- On the other hand, lump-sum payments to particularly affected groups (e.g. low-income households) make sense for social policy support. The design of a climate dividend should be prepared and introduced as quickly as possible.

12. The electricity market works.

- Especially in times of crisis and stress in the energy system, robust markets for electricity and other energy sources are important.
- The electricity market supports substitution away from resources that are temporarily particularly scarce (especially natural gas) and passes scarcity signals directly to industrial electricity consumers.
- The electricity market has proven to be robust and resilient during the crisis, both during the energy price crisis of the fall and winter and since the Russian invasion of Ukraine. Out of the current crisis, there is no need for changes in the electricity-market design.

13. There are numerous synergies, but in some cases also conflicts with climate policy goals.

- Even if the security situation is dangerous and acute, the climate problem remains pressing.
- Many courses of action are synergistic, particularly accelerating investments in energy efficiency, renewables, and electrification.
- Other courses of action are a step backward in terms of climate policy, but only temporary and, therefore, justifiable in the current situation. These include using coal-fired power plants from reserves and postponing the shutdown of further coal-fired power plants by a few years. Emissions from coal-fired power plants are also capped by the EU ETS.
- However, some courses of action involve real conflicts between climate and security policy goals, e.g. large investments in new fossil-fuel infrastructure such as new LNG terminals. We would like to avoid such "carbon lock-in," but in balancing energy policy goals, the current crisis also justifies such measures.

Signatories

The undersigned agree that the above considerations outline central cornerstones of a short-term energy policy response to the Russian attack on Ukraine. Although we may have different perspectives on individual issues, we believe that decisive action based on these key points is both sensible and necessary.

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